

THE MODERATING EFFECT OF MATERNAL RESPONSIVENESS ON
CHILDREN'S PSYCHOLOGICAL DISTRESS IN FOOD INSECURE HOMES

A Thesis

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Master of Science

by

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ABSTRACT

Food insecurity is a growing problem in the United States and other nations. For children, food insecurity not only negatively affects physical development, but psychological and cognitive development as well. Research indicates that children living without enough food display a wide range of emotional and behavior problems. Conversely, maternal responsiveness has been shown to positively affect child psychosocial development, and may even buffer negative situations and adverse outcomes among children. The purpose of this study was to determine if maternal responsiveness protects children's psychological well-being from the negative consequences of living in food insecure homes. Contrary to the hypothesis, results showed that higher levels of maternal responsiveness were associated with higher Youth Self Reports of psychological distress under conditions of food insecurity. One possible reason for this may be that high responsiveness in the context of food insecurity may lead to being overly intrusive and/or worried about food.

Keywords: food insecurity, maternal responsiveness, psychological distress, children

BIOGRAPHICAL SKETCH

Francesqca Elsa Jimenez holds a Bachelor of Arts degree with majors in Psychology, English and Women's Studies from the University of California, Los Angeles. Upon approval of this thesis, she will be conferred the degree of Master of Science with a major in Applied Research in Human-Environment Relations and a minor in Organizational Behavior. As a graduate student in the Department of Design and Environmental Analysis, Francesqca's main area of interest became how built and natural environments affect health and influence health behaviors. While at Cornell, she completed the John S. Knight Institute's Seminar in Writing and Teaching, and held teaching assistantships for Mentoring in Higher Education and the Writing in the Majors section of DEA 1500: Introduction to Human-Environment Relations.

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INTRODUCTION

Reflective of current economic uncertainty, the prevalence of food insecurity in the United States recently increased. From 2005 through 2007, the national rate of food insecurity hovered around 11% of all households, but rose to 14.6% in 2008 (Coleman-Jensen, Nord, Andrews & Carlson, 2012). In 2011, 14.9% of all U.S. households were food insecure, including 20.6% of all household with children (Coleman-Jensen et al., 2012). Poverty logically precedes food insecurity, however, even when controlling for socioeconomic status and its attendant stressors, food insecurity independently contributes to childhood psychological distress and behavioral problems. Researchers report that children living with food insecurity experience depression, anxiety, hyperactivity, academic problems, and psychosocial dysfunction (e.g., Alaimo, Olson & Frongillo, 2001; Kleinman et al., 1998; Murphy et al., 1998; Olson, 1999; Weinreb et al., 2002; Whitaker, Phillips & Orzol, 2006). Further, as food insecurity increases, child behavioral problems also increase (Whitaker et al., 2006).

Another consequence of food insecurity, maternal stress, may exacerbate these negative outcomes in children. In nonhuman primate models, the increased stress levels seen in nursing mothers who experience a variable foraging demand impair mother-child interactions (Andrews & Rosenblum, 1994; Copland et al., 2005; Rosenblum & Pully, 1984). Under these conditions, offspring demonstrate insecure attachment, anxiety, depression and poor social interaction. Whitaker et al. (2006) posit that data from these nonhuman experiments support a plausible biological causal

relationship between food insecurity and mental health in humans: Food insecurity causes mothers' emotional distress which leads to behavioral problems in their children.

As the nonhuman primate studies show that maternal stress decreases mother-child interaction, Evans, Boxhill and Pinkava (2008) determined that maternal stress and reduced social networks mediate poverty and low maternal responsiveness. Poverty begets maternal stress and reduces social networks resulting in low maternal responsiveness. Maternal responsiveness benefits children's development by fostering emotional security, verbal ability, intelligence and social skills, while unresponsive parenting leads to problems in behavioral regulation and emotional processing (Bornstein, 1989; Bradley, Corwyn, Burchinal, McAdoo & Garcia-Coll, 2001; Demo & Cox, 2000; Shonkoff & Phillips, 2000; Repetti, Taylor & Seeman, 2002) . Unfortunately, abundant literature shows that mothers with low socioeconomic status respond less to their children than more affluent mothers (e.g., Bradley & Corwyn, 2003; Grant et al., 2003; Hoff, Laursen & Tardif, 2002; Magnuson & Duncan, 2002; McLoyd, 1998; Repetti et al., 2002).

The vast evidence showing maternal responsiveness is central to children's socio-emotional, communicative and cognitive development implies that attentive parenting may shield children from negative situations and subsequent adverse outcomes. Yet, does maternal responsiveness protect children from hardships that threaten their mental health? The purpose of this article is to explore this possibility. Living with food insecurity increases psychological distress among both mothers and their children, however, within this context, mothers' responsive parenting could

ameliorate the effects of food insecurity on their children's mental health. Thus, I hypothesize that within food insecure homes, high maternal responsiveness will buffer the effects of food insecurity on child psychological distress, both concurrently and across time.

METHODS

Participants

Two-hundred and seven mother and child pairs were interviewed in their homes as part of a larger longitudinal research project on rural poverty (Evans, 2003). The families were recruited for participation when their child was in the third through fifth grade from public schools, New York State Co-operative Extension programs, Head Start Programs and other state and federal anti-poverty programs in five upstate New York rural counties. Only one child participated per household. The average income-to-needs ratio of the sample was 1.67 at Wave 1. Income-to-needs ratio was computed by dividing total family income by the poverty threshold for the appropriate family size. Based on this index, the U.S. Census Bureau defines poverty as an income-to-needs ratio equal to or less than 1. Because this study is part of a larger research program on rural poverty, approximately half of the participating families live below the poverty line.

Procedure

Data were collected using a standardized protocol in the participants' homes. Two interviewers worked with the mother and child separately. Wave 1 interviews took place at one point in time when the child was in third through fifth grade (Evans, 2003). Wave 2 interviews followed at one point in time when the child reached the seventh or eighth grade (Evans et al., 2010). During Wave 2, the gender of the interviewer was matched to the gender of the child.

Maternal Responsiveness

Maternal responsiveness was measured by the child's perception of maternal responsiveness. For the larger research project, Evans (2003) developed an eleven-item rating scale which evaluated instrumental (e.g., help with homework) and emotional (e.g., willing to talk to me when needed) responsiveness. The child responded on a five-point scale (never, hardly ever, sometimes, fairly often, and very often). The scale had good internal consistency ($\alpha = .84$) and strong test-retest reliability ($r = .92$) over a three-month period. Evidence for validity includes convergent validity with observational data on mother-child interaction during a structured game, confirmatory factor analysis (two moderately correlated subscales of instrumental and emotional responsiveness), in addition to a nomological network of associations with other constructs (significant but modest negative correlations with income, household crowding, and positive high correlations with Moos' family cohesion scale).

Food Security

The United States Department of Agriculture Economic Research Service defines food insecurity by "Reports of reduced quality, variety, or desirability of diet [with] little or no indication of reduced food intake," and "Reports of multiple indications of disrupted eating patterns and reduced food intake" (U.S. Department of Agriculture, 2012). In Wave 1, food security was measured by a single survey item, "Sometimes our family had little food to eat". Response to this question highly correlated

($r = 0.76$) with response to the 18-item U.S. Household Food Security Survey Module using a 12-month reference period (Work, Cowen, Parker and Wyman, 1990; Wyman, Cowen, Work and Parker, 1991). For Wave 2, food security was measured using the 18-item core module.

Children's Mental Health

In Wave 1, mother's ratings (0 = does not apply; 1 = applies somewhat; 2 = certainly applies) of psychological symptoms in their participating child on the Rutter Child Behavior Questionnaire ($\alpha = .83$; Boyle & Jones, 1985; Rutter, Tizzard & Whitmore, 1970) were used to benchmark children's mental health. Wave 2 children's mental health was measured using the Youth Self Report (YSR) Survey (Achenbach, 1991). The YSR is a widely used child report measure that assesses mental health and social functioning along internalizing (e.g. depression) and externalizing (e.g. aggression) scales.

RESULTS

Among the children in the sample, 15% lived in a food insecure household at or before age 9 (Wave 1). After statistically controlling for income-to-needs ratio, the analysis showed children from food insecure households were more likely to report psychological distress than children from food secure households. Food insecurity at or before age 9 predicted children's self-reported psychological distress at Wave 1, $F(1, 204) = 12.59, p < .05$ (See Table 1) and at Wave 2, $F(1, 203) = 4.33, p < .05$. The effect of food insecurity on children's mental health was evident cross-sectionally in Wave 1, as well as prospectively from Wave 1 to Wave 2 while controlling for Wave 1 psychological distress.

Table 1: *Cross-Sectional Regression Analysis of Children's Psychological Distress at Wave 1*

<i>Predictor</i>	<i>R²</i>	<i>F R²</i>	<i>ΔR²</i>	<i>F ΔR²</i>	<i>b</i>	<i>SE_b</i>	<i>B</i>
Income-to-Needs Ratio	0.08	18.34	0.08	18.34*	-0.94	0.38	-0.17
Maternal Responsiveness, Wave 1	0.11	6.24	0.03	12.52*	-2.25	0.76	-0.23
Food Security, Wave 1	0.15	12.59	0.05	13.02*	-5.3	4.45	-0.32
Food Security X Maternal Responsiveness	0.16	4.61	0.02	11.09	3.12	1.45	0.57

* $p < .05$

The results of the longitudinal regression analysis for all variables are presented in Table 2, and the descriptive statistics and correlations of all variables are presented in Table 3. The last line of Table 2 shows the results of regressing Youth Self Report of psychological distress at Wave 2 onto the interaction of food security and maternal responsiveness at Wave 1, while controlling for the other predictors listed in the table. Contrary to the hypothesis regarding maternal responsiveness, the regression analysis showed that maternal responsiveness marginally attenuates the effect of Wave 1 food security on children's psychological distress at age 13, Wave 2, $F(1,202) = 3.75, p = .054$. As shown in Figure 1, high maternal responsiveness seems to slightly decrease psychological distress among children at Wave 2 from food secure and food insecure households, yet the interaction is not significant. Furthermore, there is a main effect of maternal responsiveness on children's psychological distress such that high maternal responsiveness reduces children's psychological distress. Like the main effect for food security, the main effect of maternal responsiveness was seen both cross-sectionally at Wave 1, $F(1,205) = 6.24, p < .05$, as well as prospectively from Wave 1 to Wave 2, $F(1, 204) = 30.76, p < .05$.

Table 2: *Longitudinal Regression Analysis of Youth Self-Reported Psychological Distress at Wave 2*

<i>Predictor</i>	<i>R²</i>	<i>F R²</i>	<i>ΔR²</i>	<i>F ΔR²</i>	<i>b</i>	<i>SE_b</i>	<i>B</i>
Income-to-Needs Ratio	0.14	32.77	0.14	32.92*	-2.931	0.91	-0.2
Psychological Distress (Rutter), Wave 1	0.19	24.38	0.06	13.93*	0.35	0.16	0.14
Maternal Responsiveness, Wave 1	0.3	28.86	0.11	30.76*	-10.24	1.81	-0.4
Food Security, Wave 1	0.31	23.08	0.02	4.33*	-13.99	10.45	-0.33
Food Security X Maternal Responsiveness	0.33	19.47	0.01	3.75	6.66	3.44	0.48

* $p < .05$

Table 3: Descriptive Statistics and Correlations

Variable	Mean	Standard Deviation	Income-to-Needs Ratio, Wave 1	Income-to-Needs Ratio, Wave 2	Psychological Distress, Wave 1 (Rutter)	Psychological Distress, Wave 2 (YSR)	Maternal Responsiveness, Wave 1	Food Security, Wave 1	Food Security, Wave 2
Income-to-Needs Ratio, Wave 1	1.67	1.1	1	0.76**	-0.34**	-0.38**	0.23**	-0.27**	-0.32**
Income-to-Needs Ratio, Wave 2	2.34	1.44	0.76**	1	-0.26**	-25**	0.17*	-0.29**	-36**
Psychological Distress, Wave 1(Rutter)	9.83	6.49	-0.34**	-0.26**	1	0.34**	-0.22**	0.31**	0.36**
Psychological Distress, Wave 2 (YSR)			-0.38**	-0.25**	0.34**	1	-0.44**	0.29**	0.07
Maternal Responsiveness, Wave 1	3.15	0.63	0.23**	0.17*	-0.22**	-0.44**	1	-0.17*	0.03
Food Security, Wave 1	0.15	0.36	-0.27**	-0.29**	0.31**	0.29**	-0.17*	1	0.2*
Food Security, Wave2			-0.32**	-0.36**	0.36**	0.07	0.03	0.2*	1

* $p < .05$; ** $p < .01$

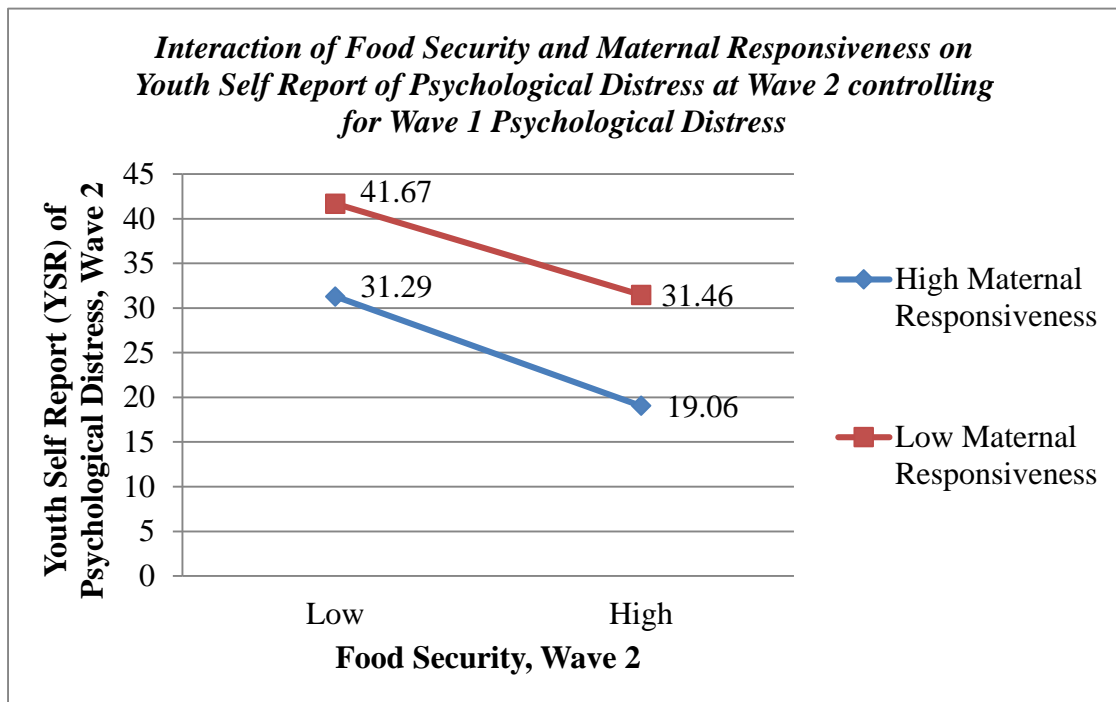


Figure 1: *Maternal Responsiveness as a Dichotomous Variable*

DISCUSSION

Low food security in childhood is associated with poor physical health, psychosocial outcomes and school performance among children. Research has shown that food security also affects mothers' mental health status which in turn influences parenting behaviors, such as maternal responsiveness; both of which contribute to children's mental health. Therefore, given the literature, main effects of food security and maternal responsiveness were expected to be found in the present study. The main objective of the present study was to test the hypothesis that high maternal responsiveness would buffer the negative effects of low food security on children's mental health status. The data, however, show the opposite effect: higher levels of maternal responsiveness were associated with higher Youth Self Reports of psychological distress under conditions of food insecurity.

While the expected main effects of food security and maternal responsiveness were found, the data did not support the hypothesis that high maternal responsiveness would moderate the effects of low food security on children's mental health. In some cases, maternal responsiveness appears to accentuate the effects of low food security. As shown in Figure 1, maternal responsiveness is presented as a dichotomous variable, on a high/low scale. When further divided into three levels, high, medium and low, the way in which maternal responsiveness interacts with food security on children's mental health is more completely revealed (See Figure 2). Medium levels of maternal responsiveness interact with low levels of food security to heighten children's psychological distress.

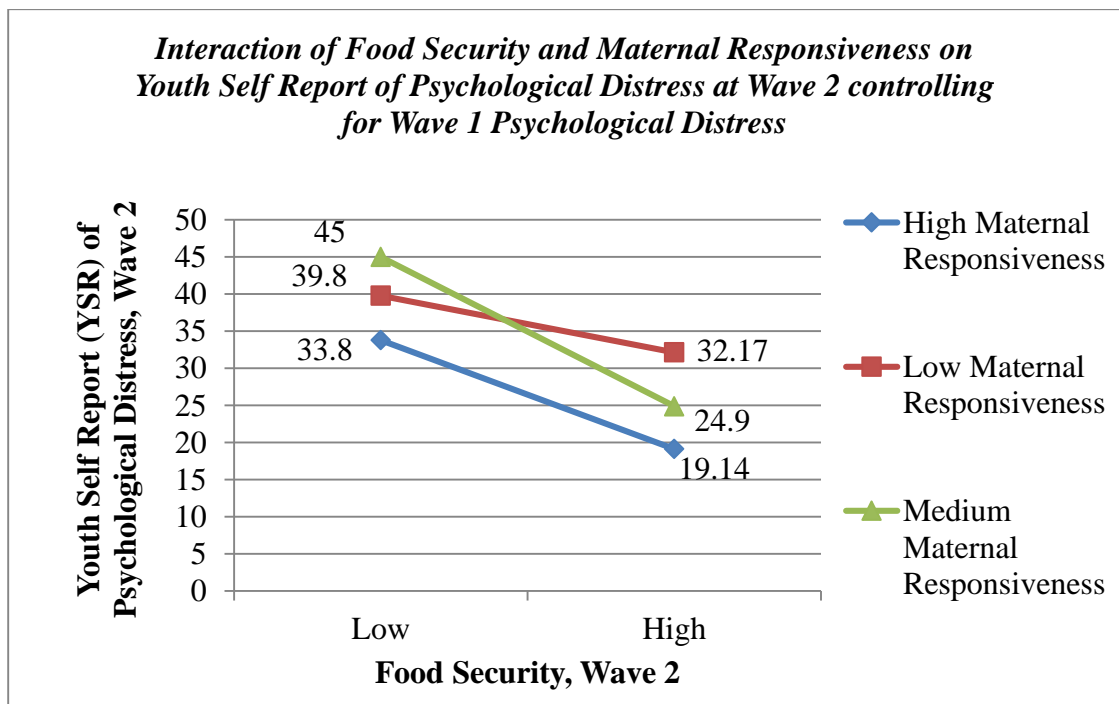


Figure 2: *Maternal Responsiveness as a Trichotomous Variable*

McLeod and Shanahan (1993) found that “mother's parenting behavior is not a powerful mediator of the effects of persistent poverty on children's mental health” (p. 361) and that other factors, such as poor nutrition, can contribute to children's mental health. It would seem the present study corroborates McLeod and Shanahan's findings. However, because the literature does not fully explain the effects of maternal responsiveness on children's mental health, it is not completely understood why, in this study, increased maternal responsiveness marginally interacted with low food security in a detrimental way. Several possible explanations for these findings exist. First, a more responsive mother may be more aware of her family's state of low food security and therefore might have heightened stress levels or feelings of violated expectations. These feelings could compromise a mother's psychological well-being. Since maternal mental health predicts children's mental health, heightened maternal stress, anxiety or disappointment could be the major factor affecting children's increase psychological distress. Indeed, Whitaker, Phillips and Orzol (2006), emphasize maternal stress and anxiety, noting that as food insecurity increases, both mothers' anxiety and child behavioral problems also increase. Second, a responsive mother aware of her family's low food security may give up food herself in order to feed her child. Although altruistic in intention, maternal sacrifice may cause feelings of guilt or sadness in a child, thus increasing psychological distress. And third, a responsive mother who is aware of her family's low food security may scrupulously monitor her child's eating. Overbearing or intrusive maternal behavior can have a detrimental effect on children's psychological development (Aunola & Nurmi, 2005).

Several limitations to this study exist for each variable used in this study which could have impacted the findings herein. With regard to food security, the case definition at Wave 1 was based solely on a single survey item. It is unlikely that this caused an information bias effect given that the single survey item correlates highly

with response to the 18-item U.S. Household Food Security Survey Module using a 12-month reference period ($r = 0.76$). However, both Wave 1 and Wave 2 measures of food security depend on self-report, which by its very nature can be problematic. Since low food security may be seen as a socially undesirable state, occurrence may be underestimated, and therefore underreported. Maternal responsiveness was based on child's perception of maternal behaviors. As a construct, maternal responsiveness may be confounded with two other constructs (Evans, 2005). First, higher ratings of maternal responsiveness may be indicative of happier well-adjusted children. Children who are happier in general may view their mothers' parenting behavior more positively. Second, maternal responsiveness may not be the key process, but merely a product of a better overall parent-child relationship.

The measure of children's psychological distress used here was also vulnerable to the problems of self-report. Although the Youth Self Report has strong reliability and has undergone extensive validation (Achenbach, 1991), at Wave 2 participants were in the midst of adolescence, a period which can be marked by changes in mood, attitude and emotion. Stage of development could be confounding psychological distress reports. Further, between Wave 1 and Wave 2, attrition occurred more frequently among low-income children than middle-income children. Although the outcome measure for Youth Self Report of psychological distress did not show selective attrition, it is still a possible limitation. It is possible selective attrition biased the results because children who moved or could not be contacted again struggled more with food security or psychological distress than those who remained in the sample.

A 15% prevalence of low food security was found at Wave 1 among families in this sample. Extensive evidence shows that low food security in the lives of children leads to poor academic, health and socio-emotional outcomes. Low food

security is more common among economically disadvantaged children, increasing the burden these children experience due to socioeconomic status. The obvious and best way to reduce the effects of low food security on children is to improve access and availability to nutritious foods. It is particularly striking that the results of this study suggest that high maternal responsiveness leads to greater youth psychological distress in food insecure homes. Since vast research shows that high maternal responsiveness centrally impacts children's healthy development and well-being, the results speaks to how essential food security is to survival: The stress from living in food insecurity is so profound that even behaviors as influential as maternal responsiveness cannot ameliorate its negative effects.

APPENDIX A

Rutter Child Behavior Questionnaire

STRICTLY CONFIDENTIAL

RUTTER

FOR OFFICE USE ONLY

SCALE A (2)

TO BE COMPLETED BY PARENTS

Name of Child _____ Boy/Girl _____ Date of Birth _____

Address _____ School _____

RUTTER X (A-4) (-17, V)

HOW TO FILL IN THIS FORM

The questionnaire asks about various kinds of behaviour that many children show at some time. Please give the answers according to the way your child has been during the PAST 3 MONTHS.

HEALTH PROBLEMS

Below is a list of minor health problems which most children have at some time. Please tell us how often each of these happens with your child by putting a cross in the correct box.

	Never	Occasionally, but not as often as once per week	At least once per week	FOR OFFICE USE ONLY
A. Complains of headaches	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Has stomach-ache or vomiting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Asthma or attacks of wheezing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Wets the bed or pants	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Soils or loses control of bowels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. Has temper tantrums (that is, complete loss of temper with shouting, angry movements, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. Had tears on arrival at school or refused to go into the building	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H. Truants from school	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Below are a series of descriptions of behaviour often shown by children. After each statement are three columns—"Doesn't Apply", "Applies Somewhat", and "Certainly Applies". If your child definitely shows the behaviour described by the statement place a cross in the box under "Certainly Applies". If he or she shows the behaviour described by the statement but to a lesser degree or less often, place a cross under "Applies Somewhat". If, as far as you are aware, your child does not show the behaviour, place a cross under "Doesn't Apply".

Please put one cross against each statement.

STATEMENT	Doesn't Apply	Applies Somewhat	Certainly Applies	
1. Very restless, has difficulty staying seated for long	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Squirmy, fidgety child	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Often destroys own or others' property	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Frequently fights or is extremely quarrelsome with other children ..	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Not much liked by other children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Often worried, worries about many things	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Tends to be on own—rather solitary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Irritable. Is quick to 'fly off the handle'	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Often appears miserable, unhappy, tearful or distressed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Has twitches, mannerisms or tics of the face or body	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Frequently sucks thumb or finger	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Frequently bites nails or fingers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Is often disobedient	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Tends to be fearful or afraid of new things or new situations ..	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Fussy or over-particular child	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Often tells lies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Bullies other children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ARE THERE ANY OTHER PROBLEMS?

Signature: Mr./Mrs. _____

THANK YOU VERY MUCH FOR YOUR HELP

HABITS. Please place a cross in the box by the correct answer.

I. Does he/she stammer or stutter? ☐ No. ☐ Yes—mildly. ☐ Yes—severely.

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USE ONLY

☐

II. Is there any difficulty with speech other than
stammering or stuttering? ☐ No. ☐ Yes—mild. ☐ Yes—severe.

☐

If "Yes", please describe the difficulty:

.....
.....

III. Does he/she ever steal things? ☐ No. ☐ Yes—occasionally. ☐ Yes—frequently.

☐

If "Yes" (occasionally or frequently),
does it involve

☐ minor pilfering of pens, sweets, toys, small sums of money, etc.

☐ stealing of big things

☐ both minor pilfering and stealing of big things

is stealing done

☐ in the home

☐ elsewhere

☐ both in the home and elsewhere

is stealing done

☐ on own

☐ with other children or adults

☐ sometimes on own, sometimes with others

☐ ☐

IV. Is there any eating difficulty? ☐ No. ☐ Yes—mild. ☐ Yes—severe.

☐

If "Yes", is it

☐ faddiness/picky eater

☐ not eating enough

☐ eating too much

☐ other, please describe:

☐
☐

V. Is there any sleeping difficulty? ☐ No. ☐ Yes—mild. ☐ Yes—severe.

☐

If "Yes", is it difficulty in

☐ getting off to sleep

☐ waking during the night

☐ waking early in the morning

☐ other, please describe:

☐

APPENDIX B Youth Self Report Survey

SID _____ Experimenter _____ Date _____

Below is a list of items that describe teenagers. For each item that describes you **now or within the past 6 months**, since _____, please circle the 2 if the item is **very true or often true** of you. Circle the 1 if the item is **somewhat or sometimes** true of you. If the item is **not true** of you, circle the 0.

0 = Not True 1 = Somewhat or Sometimes True 2 = Very True or Often True

0	1	2	1. I act too young for my age
0	1	2	2. I argue a lot
0	1	2	3. I act like the opposite sex
0	1	2	4. I brag
0	1	2	5. I have trouble concentrating or paying attention
0	1	2	6. I can't get my mind off certain thoughts
0	1	2	7. I have trouble sitting still
0	1	2	8. I'm too dependent on adults
0	1	2	9. I feel lonely
0	1	2	10. I feel confused or in a fog
0	1	2	11. I cry a lot
0	1	2	12. I am mean to others
0	1	2	13. I daydream a lot
0	1	2	14. I deliberately try to hurt or kill myself
0	1	2	15. I try to get a lot of attention
0	1	2	16. I destroy my own things
0	1	2	17. I destroy things belonging to others

Now, or within the past 6 months:

0 = Not True 1 = Somewhat or Sometimes True 2 = Very True or Often True

0	1	2	18. I disobey my parents
0	1	2	19. I disobey at school
0	1	2	20. I don't eat as well as I should
0	1	2	21. I don't get along with other kids
0	1	2	22. I don't feel guilty after doing something I shouldn't
0	1	2	23. I am jealous of others
0	1	2	24. I am afraid of certain animals, situations, or places, other than school
0	1	2	25. I am afraid of going to school
0	1	2	26. I am afraid I might think or do something bad
0	1	2	27. I feel that I have to be perfect
0	1	2	28. I feel that no one loves me
0	1	2	29. I feel that others are out to get me
0	1	2	30. I feel worthless or inferior
0	1	2	31. I accidentally get hurt a lot
0	1	2	32. I get in many fights
0	1	2	33. I get teased a lot
0	1	2	34. I hang around with kids who get in trouble
0	1	2	35. I hear sounds or voices that other people think aren't there
0	1	2	36. I act without stopping to think
0	1	2	37. I would rather be alone than with others

Now, or within the past six months:

0 = Not True 1 = Somewhat or Sometimes True 2 = Very True or Often True			
0	1	2	38. I lie or cheat
0	1	2	39. I bite my fingernails
0	1	2	40. I am nervous or tense
0	1	2	41. Parts of my body twitch or make nervous movements
0	1	2	42. I have nightmares
0	1	2	43. I am not liked by other kids
0	1	2	44. I am too fearful or anxious
0	1	2	45. I feel dizzy
0	1	2	46. I feel too guilty
0	1	2	47. I eat too much
0	1	2	48. I feel overtired
0	1	2	49. I am overweight
			50. Physical problems without known medical cause
0	1	2	a. Aches or pains (not stomach or headaches)
0	1	2	b. Headaches
0	1	2	c. Nausea, feel sick
0	1	2	d. Problems with eyes (not if corrected by glasses)
0	1	2	e. Rashes or other skin problems
0	1	2	f. Stomachaches or cramps
0	1	2	g. Vomiting, throwing up
0	1	2	51. I physically attack people

Now, or within the past six months:

0 = Not True 1 = Somewhat or Sometimes True 2 = Very True or Often True			
0	1	2	52. I pick my skin or other parts of my body
0	1	2	53. My school work is poor
0	1	2	54. I am poorly coordinated or clumsy
0	1	2	55. I would rather be with older kids than with kids my own age
0	1	2	56. I would rather be with younger kids than with kids my own age
0	1	2	57. I refuse to talk
0	1	2	58. I repeat certain acts over and over
0	1	2	59. I run away from home
0	1	2	60. I scream a lot
0	1	2	61. I am secretive or keep things to myself
0	1	2	62. I see things that other people think aren't there
0	1	2	63. I am self-conscious or easily embarrassed
0	1	2	64. I set fires
0	1	2	65. I show off or clown
0	1	2	66. I am shy
0	1	2	67. I sleep less than most kids
0	1	2	68. I sleep more than most kids during day and/or night
0	1	2	69. I have a speech problem
0	1	2	70. I steal at home
0	1	2	71. I steal from places other than home
0	1	2	72. I store up things I don't need

Now, or within the past six months:

0 = Not True 1 = Somewhat or Sometimes True 2 = Very True or Often True

0	1	2	73. I do things other people think are strange
0	1	2	74. I have thoughts that other people would think are strange
0	1	2	75. I am stubborn
0	1	2	76. My moods or feelings change suddenly
0	1	2	77. I am suspicious
0	1	2	78. I swear or use dirty language
0	1	2	79. I think about killing myself
0	1	2	80. I talk too much
0	1	2	81. I tease others a lot
0	1	2	82. I have a hot temper
0	1	2	83. I think about sex too much
0	1	2	84. I threaten to hurt people
0	1	2	85. I am too concerned about being neat or clean
0	1	2	86. I have trouble sleeping
0	1	2	87. I cut classes or skip school
0	1	2	88. I don't have much energy
0	1	2	89. I am unhappy, sad, or depressed
0	1	2	90. I am louder than other kids
0	1	2	91. I use alcohol or drugs for nonmedical purposes
0	1	2	92. I wish I were of the opposite sex
0	1	2	93. I keep from getting involved with others
0	1	2	94. I worry a lot

APPENDIX C
Maternal Responsiveness Scale

Parenting (C)

Here are some descriptions of the kinds of things parents do. Read each statement and circle the answer which best describes your parents. (by parents we mean adults who take care of you and live in the home)

For each question, please circle how often the behavior or situation typically occurs.

Be sure to answer each question. There are no wrong or right answers. The information you give us is confidential. No one but the research team will see what you said. No one in your family or at school will ever see this information.

Never=this does not happen at all
 Hardly Ever=happens once/twice a year
 Sometimes=happens once or twice a month
 Fairly Often=once a week
 Very Often=more than once a week

	0	1	2	3	4
① If I need help with something I have to do, my parents will help me out.	Never	Hardly Ever	Sometimes	Fairly Often	Very Often
2. My parents know where I am when I go out at night.	Never	Hardly Ever	Sometimes	Fairly Often	Very Often
③ When I am worried or upset about something, my parents let me know we can talk about it.	Never	Hardly Ever	Sometimes	Fairly Often	Very Often
4. I enjoy playing games together with my parents.	Never	Hardly Ever	Sometimes	Fairly Often	Very Often
5. My parents know how well I am doing in my classes.	Never	Hardly Ever	Sometimes	Fairly Often	Very Often
② My parents don't really listen to me when I talk to them.	Never	Hardly Ever	Sometimes	Fairly Often	Very Often

Never=this does not happen at all
 Hardly Ever=happens once/twice a year
 Sometimes=happens once or twice a month
 Fairly Often=once a week
 Very Often=more than once a week

7. My parents know where I am most afternoons after school.	Never	Hardly Ever	Sometimes	Fairly Often	Very Often
8. When I want to talk with my parents, they find the time.	Never	Hardly Ever	Sometimes	Fairly Often	Very Often
9. We have fun doing chores together around the house or in the yard.	Never	Hardly Ever	Sometimes	Fairly Often	Very Often
10. My parents are too busy to pay attention to me when I want them to.	Never	Hardly Ever	Sometimes	Fairly Often	Very Often
11. When I go out with my friends, my parents know what we are doing.	Never	Hardly Ever	Sometimes	Fairly Often	Very Often
12. When I want to do things together with them, it rarely happens.	Never	Hardly Ever	Sometimes	Fairly Often	Very Often

Never=this does not happen at all
 Hardly Ever=happens once/twice a year
 Sometimes=happens once or twice a month
 Fairly Often=once a week
 Very Often=more than once a week

13. We spend time doing things together that I like to do.

Never	Hardly Ever	Sometimes	Fairly Often	Very Often
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14. They are too busy to help me when I have questions about school assignments.

Never	Hardly Ever	Sometimes	Fairly Often	Very Often
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15. I enjoy making or fixing things with my parents.

Never	Hardly Ever	Sometimes	Fairly Often	Very Often
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16. If I don't understand something, they explain it to me.

Never	Hardly Ever	Sometimes	Fairly Often	Very Often
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17. When I ask for help with a problem, it just upsets them.

Never	Hardly Ever	Sometimes	Fairly Often	Very Often
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18. If I need money for something that is important, they do their best to help me out.

Never	Hardly Ever	Sometimes	Fairly Often	Very Often
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Never=this does not happen at all
 Hardly Ever=happens once/twice a year
 Sometimes=happens once or twice a month
 Fairly Often=once a week
 Very Often=more than once a week

19. They help me with projects that I'm working on.	Never	Hardly Ever	Sometimes	Fairly Often	Very Often
20. My parents attend school programs.	Never	Hardly Ever	Sometimes	Fairly Often	Very Often
21. When I go out with my friends, my parents know whom I am with.	Never	Hardly Ever	Sometimes	Fairly Often	Very Often
22. They watch me in sports or other extracurricular activities.	Never	Hardly Ever	Sometimes	Fairly Often	Very Often

APPENDIX D
Eighteen-Item U.S. Household Food Security Survey Module

2

These next questions are about the food eaten in your household in the last 12 months since _____ of last year.

Now I'm going to read you several statements that people have made about their food situation. For these statements, please tell me whether the statement was often true, sometimes true, or never true for your household in the last 12 months, that is, since last (name of current month).

3. The first statement is "We worried whether our food would run out before we got money to buy more." Was that often true, sometimes true, or never true for your household in the last 12 months?

[] Often true 0
[] Sometimes true 1
[] Never true 2

4. "The food that we bought just didn't last, and we didn't have money to get more." Was that often, sometimes, or never true for your household in the last 12 months?

[] Often true 0
[] Sometimes true 1
[] Never true 2

5. "We couldn't afford to eat balanced meals." Was that often, sometimes, or never true for your household in the last 12 months?

[] Often true 0
[] Sometimes true 1
[] Never true 2

6. "We relied on only a few kinds of low-cost food to feed our children because we were running out of money to buy food." Was that often, sometimes, or never true for your household in the last 12 months?

[] Often true 0
 [] Sometimes true 1
 [] Never true 2

7. "We couldn't feed our children a balanced meal, because we couldn't afford that." Was that often, sometimes, or never true for your household in the last 12 months?

[] Often true 0
 [] Sometimes true 1
 [] Never true 2

1st-level Screen (screener for Stage 2): If affirmative response to any one of Questions 3-7 (i.e., "often true" or "sometimes true"), then continue to Stage 2; otherwise, skip to end.

Stage 2: Questions 8-12 (asked of household's passing the 1st-level Screen)

8. "Our children were not eating enough because we just couldn't afford enough food." Was that often, sometimes, or never true for your household in the last 12 months?

[] Often true 0
 [] Sometimes true 1
 [] Never true 2

9. In the last 12 months, since last (name of current month), did you or other adults in your household ever cut the size of your meals or skip meals because there wasn't enough money for food?

☐ Yes 0
☐ No (Skip 9a) 1

- 9a. [IF YES ABOVE, ASK] How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?

☐ Almost every month 0
☐ Some months but not every month 1
☐ Only 1 or 2 months 2

10. In the last 12 months, did you ever eat less than you felt you should because there wasn't enough money to buy food?

☐ Yes 0
☐ No 1

11. In the last 12 months, were you ever hungry but didn't eat because you couldn't afford enough food?

☐ Yes 0
☐ No 1

12. In the last 12 months, did you lose weight because you didn't have enough money for food?

☐ Yes 0
☐ No 1

2nd-level Screen (screener for Stage 3): If affirmative response to any one of Questions 8 through 12, then continue to Stage 3; otherwise, skip to end.

Stage 3: Questions 12-16 (asked of household's passing the 2nd-level Screen

13. In the last 12 months, did you or other adults in your household ever not eat for a whole day because there wasn't enough money for food?

- ☐ Yes 0
☐ No (Skip 13a) 1

13a. [IF YES ABOVE, ASK] How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?

- ☐ Almost every month 0
☐ Some months but not every month 1
☐ Only 1 or 2 months 2

14. The next questions are about children living in the household who are under 18 years old. In the last 12 months, since (current month) of last year, did you ever cut the size of the children's meals because there wasn't enough money for food?

- ☐ Yes 0
☐ No 1

15. In the last 12 months, did any of the children ever skip meals because there wasn't enough money for food?

- ☐ Yes 0
☐ No (Skip 15a) 1

15a. [IF YES ABOVE ASK] How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?

- ☐ Almost every month 0
☐ Some months but not every month 1
☐ Only 1 or 2 months 2

16. In the last 12 months, were the children ever hungry but you just couldn't afford more food?

- ☐ Yes 0
☐ No 1

17. In the last 12 months, did any of the children ever not eat for a whole day because there wasn't enough money for food?

- ☐ Yes 0
☐ No 1

END OF FOOD-SECURITY/HUNGER SECTION

FOOD INSECURITY 2

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